

PATENT COOPERATION TREATY

To:

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PCT

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43bis.1)

Date of mailing (day/month/year) **1 October 2004 (01.10.2004)**

Applicant's or agent's file reference
FP04031

FOR FURTHER ACTION
See paragraph 2 below

International application No.
PCT/KR 2004/001152

International filing date (day/month/year)
14 May 2004 (14.05.2004)

Priority Date (day/month/year)
30 May 2003 (30.05.2003)

International Patent Classification (IPC) or both national classification and IPC
H04L 29/06

Applicant

LG ELECTRONICS, INC.

1. This opinion contains indications relating to the following items:

- ☒ Cont. No. I Basis of the opinion
- ☐ Cont. No. II Priority
- ☐ Cont. No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Cont. No. IV Lack of unity of invention
- ☒ Cont. No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Cont. No. VI Certain documents cited
- ☐ Cont. No. VII Certain defects in the international application
- ☐ Cont. No. VIII Certain observations on the international application

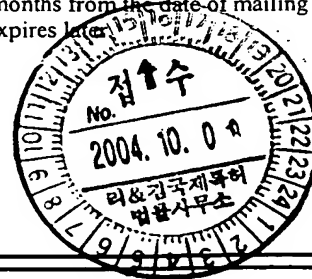
2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.



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Continuation No. I

IAP16 Rec'd PCT/PTO 29 NOV 2005

Basis of the opinion

1. With regard to the **language**, this opinion has been established on the basis of the international application in the language in which it was filed.

Continuation No. V

Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims ----	YES
	Claims 1-18	NO
Inventive step (IS)	Claims ----	YES
	Claims 1-18	NO
Industrial applicability (IA)	Claims 1-18	YES
	Claims ----	NO

2. Citations and explanations:

Cited Documents:

D1: Koon-Seok Lee, Hoan-Jong Choi, Chang-Ho Kim, Seung-Myun Baek, 'A new control protocol for home appliances-LnCP.' In: International Symposium on Industrial Electronics, 2001. Proceedings. ISIE 2001. 12-16 June 2001
Pages: 286 - 291 vol.1

D2: US 2003/0088703 A1

Document D1 discloses a description of the control protocol, LnCP (Living network Control Protocol), targeting at low implementation cost networking system in home environment. The protocol is based on multi-master system and uses a peer-to-peer communication model.

According to D1, the protocol assumes single bus therefore the appliances can be attached to the bus anywhere if the power lines are employed as network bus. Home appliances linked via LnCP are controlled and monitored at remote place. Every device communicates with each other in packet unit, which has variable length so that the protocol can deal with the devices having the diverse room of RAM resource. The bytes number of packet header is also variable in order that new function can be added in the future.

In section 6.1, D1 defines a message as a set of elements that have information to control the communication process and analyze the results of that in the point of master view. Message is divided into two categories according to the type of device who makes a message, request and response messages. Request message includes the command and the arguments to execute it. There are two kinds of response message, ACK and NAK messages. The response messages include the copy of command code, ACK/NAK and return arguments generated after execution of command code. The bytes number of the each argument is fixed definitely to each command code.

Document D2 discloses a method for generating a house code (HC) in a home network based on a living network control protocol (LnCP), in which a (HC) having a small capacity is generated by using a region separation code and a household separation code and the generated HC is provided to each household. To this end, in the home network generating a HC for dividing each household and providing the generated HC to each household, the method comprises the steps of: generating a portion of the HC as region separation codes for dividing into plural regions; and generating another portion of the HC as household separation codes for providing to each household of the plural regions

According to D2, a data frame is defined, whereby if the data frame is constructed, the network manager transmits the constructed data frame through the power line by the PLC, and the transmitted data frame is received by the modem connected to the digital domestic appliances of each household. The modem which received the data frame extracts a HC from the frame header of the data frame and determines whether the extracted HC is consistent with a HC preset to itself or not. As a result of the determination, if so, the modem transmits the received data frame to the digital domestic appliance connected to itself. The digital domestic appliance extracts the LnCP packet of the body from the received data frame and determines whether a predetermined order is given to itself or not. If the order is given to itself, the digital domestic appliance performs operations by the predetermined order, and if the order is not given to itself, the digital domestic appliance ignores the order.

The present application relates to a home network system, comprising at least two electric devices and a network based on a predetermined protocol for connecting the devices. Furthermore, a message protocol is defined, comprising a command field and an argument field in order to launch commands on electric devices.

These features are the same as provided in D1, where the splitting of command and argument is foreseen, too. The present application provides a mechanism to control the command/argument dependencies and sets default arguments in case of deficiencies of the same. However, this cannot be considered to be inventive since an error control has to be done in any case and this is a simple case that is well known by a person skilled in the art.

Furthermore, the features of the present applications can also be found in D2, thereby splitting command and region by defining regions as arguments. Further, the mechanism of consistence checking of command and regions is equivalent to the treatment of deficiencies of the present application.

Accordingly, all features of the present application can be found in any of the cited documents.

Therefore, claims 1 to 18 are not new and do not include an inventive step.

Industrial applicability is given.



PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference FP04031	FOR FURTHER ACTION	see Form PCT/ISA/220 as well as, where applicable, item 5 below.
International application No. PCT/KR 2004/001152	(Earliest) Priority Date (day/month/year) 30 May 2003 (30.05.2003)	International filing date (day/month/year) 14 May 2004 (14.05.2004)
Applicant LG ELECTRONICS, INC.		

This international search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 4 sheets.

☐ It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the report

a. With regard to the language, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ The international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

b. ☐ With regard to any nucleotide and/or amino acid sequence disclosed in the international application, see continuation of this first sheet.

2. ☐ Certain claims were found unsearchable (see continuation of this first sheet)

3. ☐ Unity of invention is lacking (see continuation of this first sheet)

4. With regard to the title,

☒ the text is approved as submitted by the applicant.

☐ the text has been established by this Authority to read as follows:

5. With regard to the abstract,

☐ the text is approved as submitted by the applicant.

☒ the text has been established, according to Rule 38.2(b), by this Authority as it appears in the continuation of this first sheet. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. With regard to the drawings,

a. the figure of the drawings to be published with the abstract is Figure No. 1

☒ as suggested by the applicant.

☐ as selected by this Authority, because the applicant failed to suggest a figure.

☐ as selected by this Authority, because this figure better characterizes the invention.

b. ☐ none of the figures is to be published with the abstract.



Continuation No. IV:**Text of the abstract****(Continuation of item 5 of the first sheet)**

The present invention discloses a home network system (1) using a living network control protocol. The home network system (1) includes: at least two electric devices (41- 49); and a network based on a predetermined protocol for connecting the electric devices (41- 49), wherein a message transmitted between one electric device (41- 49) and the other electric device (41- 49) includes a command code field implying an operation that is to be performed by the other electric device (41- 49), and an argument field according to a version of a protocol applied to one electric device (41- 49) for performing the operation.

INTERNATIONAL SEARCH REPORT

International application No.
PCT/KR 2004/001152

A. CLASSIFICATION OF SUBJECT MATTER

IPC⁷: H04L 29/06

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC⁷: H04L

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
WPI, PAJ, EPODOC, Elsevier, IEE, I3E, IEEEXplore

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	Koon-Seok Lee, Hoan-Jong Choi, Chang-Ho Kim, Seung-Myun Baek, 'A new control protocol for home appliances-LnCP.' In: International Symposium on Industrial Electronics, 2001. Proceedings. ISIE 2001. 12-16 June 2001 pages: 286 - 291 volume 1	1-18
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X	US 2003/0088703 A1 (KIM) 8 May 2003 (08.05.2003) <i>figures; abstract; sections 4, 9-13</i>	1-18

☐ Further documents are listed in the continuation of Box C.☒ See patent family annex.

* Special categories of cited documents:

- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier application or patent but published on or after the international filing date
- "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- "O" document referring to an oral disclosure, use, exhibition or other means
- "P" document published prior to the international filing date but later than the priority date claimed

- "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
- "&" document member of the same patent family

Date of the actual completion of the international search
28 September 2004 (28.09.2004)Date of mailing of the international search report
1 October 2004 (01.10.2004)Name and mailing address of the ISA/ AT
Austrian Patent Office
Dresdner Straße 87, A-1200 ViennaAuthorized officer
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INTERNATIONAL SEARCH REPORT
Information on patent family members



International application No.
PCT/KR 2004/001152

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
A		none	